

FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT FEB 22 2002		ATTY. DOCKET NO. 1875.0370000	APPLICATION NO. 09/849,537
		APPLICANT Zhang et al.	
		FILING DATE May 7, 2001	GROUP 2811

## U.S. PATENT DOCUMENTS

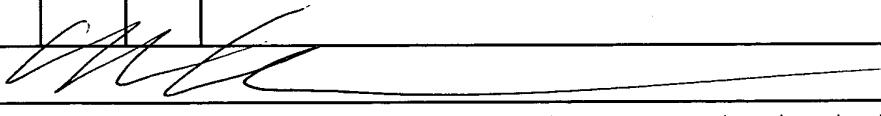
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
ML	AA1	5,894,410	04/1999	Barrow	361	760	
ML	AB1	6,020,637	02/2000	Karnezos	257	738	
	AC1						
	AD1						
	AE1						
	AF1						

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
ML	AG1	10-247702	09/1998	Japan	H01L	23/12	Yes No
	AH1						Yes No
	AI1						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

ML	AJ	1	English-language Abstract of JP 10-247702, published September 14, 1998, from <a href="http://www1.jpd1.jpo.go.jp">http://www1.jpd1.jpo.go.jp</a> , 2 Pages (last visited January 25, 2002).
	AK	1	
	AL	1	
	AM	1	
	AN	1	

EXAMINER  DATE CONSIDERED 

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		APPLICANT Zhang et al.		
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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
ML	AA1	5,397,921	03/1995	Karnezos	257	779	
	AB1	5,474,957	12/1995	Urushima	437	209	
	AC1	5,534,467	07/1996	Rostoker	437	209	
O I P E	AD1	09/984,259	---	Zhao et al.	---	---	10/29/2001
JUN 27 2002	AE1	09/997,272	---	Zhao et al.	---	---	11/30/2001
TRADEMARK OFFICE	AF1	09/742,366	---	Khan et al.	---	—	12/22/2000
	AG1						
	AH1						
	AI1						

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
ML	AJ1	EP 0 504 411 B1	06/1998	EPO	H01L	23/04	Yes No
	AK1						Yes No
	AL1						Yes No
	AM1						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

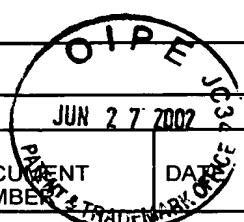
ML	AN	1	Ahn, S.H. and Kwon, Y.S., "Popcorn Phenomena in a Ball Grid Array Package", IEEE Transactions on Components, Packaging, and Manufacturing Technology Part B: Advanced Packaging, IEEE, August 1995, Vol. 18, No. 3, pp. 491-96.
ML	AO	1	Amkor Electronics, "Amkor BGA Packaging: Taking The World By Storm", Electronic Packaging & Production, Cahners Publishing Company, May 1994, page unknown.
ML	AP	1	Anderson, L. and Trabucco, B., "Solder Attachment Analysis of Plastic BGA Modules", Surface Mount International Conference, Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 189-194.
ML	AQ	1	Andrews, M., "Trends in Ball Grid Array Technology," Ball Grid Array National Symposium, March 29-30, 1995, Dallas, Texas, 10 pages.
ML	AR	1	Attarwala, A.I. Dr. and Stierman, R., "Failure Mode Analysis of a 540 Pin Plastic Ball Grid Array", Surface Mount International Conference, Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 252-257.

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
AA2						
AB2						
AC2						
AD2						
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AH2						
AI2						

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
AJ2						Yes No
AK2						Yes No
AL2						Yes No
AM2						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

MC	AN	2	Banerji, K., "Development of the Slightly Larger Than IC Carrier (SLICC), Journal of Surface Mount Technology, July 1994, pp. 21-26.
	AO	2	Bauer, C. Ph.D., "Partitioning and Die Selection Strategies for Cost Effective MCM Designs", Journal of Surface Mount Technology, October 1994, pp. 4-9.
	AP	2	Bernier, W.E. et al., "BGA vs. QFP: A Summary of Tradeoffs for Selection of High I/O Components", Surface Mount International Conference Proceedings, Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 181-185.
	AQ	2	Burgos, J. et al., "Achieving Accurate Thermal Characterization Using a CFD Code-- A Case Study of Plastic Packages" IEEE Transactions on Components, Packaging, and Manufacturing Technology Part A, IEEE, December 1995, Vol. 18, No. 4, pp. 732-738.
MC	AR	2	Chadima, M., "Interconnecting Structure Manufacturing Technology," Ball Grid Array National Symposium, Dallas, Texas, March 29-30, 1995.

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EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
OPE	AA3					
JUN 27 2002	AB3					
	AC3					
	AD3					
	AE3					
	AF3					
	AG3					
	AH3					
	AI3					

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ3					Yes No
	AK3					Yes No
	AL3					Yes No
	AM3					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

M	AN	3	Chanchani, R. et al., "Mini BGA: Pad and Pitch Ease Die Test and Handling", Advanced Packaging, IHS Publishing Group, May/June 1995, pp.34, 36-37.
	AO	3	Chung, T.C. et al., "Rework of Plastic, Ceramic, and Tape Ball Grid Array Assemblies", Ball Grid Array National Symposium Proceedings, Dallas, Texas, March 29-30, 1995, pp. 1-15.
	AP	3	Cole, M.S. and Caulfield, T. "A Review of Available Ball Grid Array (BGA) Packages", Journal of Surface Mount Technology, Surface Mount Technology Association, January 1996, Vol. 9, pp. 4-11.
	AQ	3	Cole, M.S. and Caulfield, T., "Ball Grid Array Packaging" Surface Mount International Conference Proceedings, Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 147-153.
M	AR	3	Dobers, M. and Seyffert, M., "Low Cost MCMs: BGAs Provide a Fine-Pitch Alternative", Advanced Packaging, IHS Publishing Group, September/October 1994, Vol. 3, No. 5, pp. 28, 30 and 32.

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EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
IP	AA4					
O	AB4					
JUN 27 2002	AC4					
S	AD4					
	AE4					
	AF4					
	AG4					
	AH4					
	AI4					

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ4					Yes No
	AK4					Yes No
	AL4					Yes No
	AM4					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

<i>MC</i>	AN	4	Dody, G. and Burnette, T., "BGA Assembly Process and Rework", Journal of Surface Mount Technology, Surface Mount Technology Association, January 1996, Vol. 9, pp. 39-45.
	AO	4	Edwards, D. et al., "The Effect of Internal Package Delaminations on the Thermal Performance of PQFP, Thermally Enhanced PQFP, LOC and BGA Packages", 45th Electronic Components & Technology Conference, IEEE, May 21-24, 1995, Las Vegas, NV, pp. 285-292.
	AP	4	Ejim, T.L. et al., "Designed Experiment to Determine Attachment Reliability Drivers for PBGA Packages", Journal of Surface Mount Technology, Surface Mount Technology Association, January 1996, Vol. 9, pp. 30-38.
	AQ	4	Ewanich, J. et al., "Development of a Tab (TCP) Ball Grid Array Package", Proceedings of the 1995 International Electronics Packaging Conference, San Diego, CA, September 24-27, 1995, pp. 588-594.
<i>MC</i>	AR	4	Fauser, S. et al, "High Pin-Count PBGA Assembly", Circuits Assembly, February 1995, Vol 6, No. 2, pp. 36-38 and 40.

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	AA5					
	AB5					
	AC5					
JUN 27 2002	AD5					
	AE5					
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	AG5					
	AH5					
	AI5					

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ5					Yes No
	AK5					Yes No
	AL5					Yes No
	AM5					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

W	AN	5	Fauser, Suzanne et al., "High Pin Count PBGA Assembly: Solder Defect Failure Modes and Root Cause Analysis", Surface Mount International, Proceedings of The Technical Program, Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 169-174.
	AO	5	Ferguson, M. "Ensuring High-Yield BGA Assembly", Circuits Assembly, February 1995, Vol. 6, No. 2, pp. 54, 56 and 58.
	AP	5	Freda, M., "Laminate Technology for IC Packaging", Electronic Packaging & Production, Cahners Publishing Company, October 1995, Vol. 35, No. 11, pp. S4-S5.
	AQ	5	Freedman, M., "Package Size and Pin-Out Standardization", Ball Grid Array National Symposium, March 29-30, 1995, 7 pages.
W	AR	5	Freyman, B. and Pennisi, R., "Over-molded Plastic Pad Array Carriers (OMPAC): A Low Cost, High Interconnect Density IC Packaging Solution for Consumer and Industrial Electronics", 41st Electronic Components & Technology Conference, IEEE, May 11-16, 1991, pp. 176-82.

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA6						
	AB6						
	AC6						
	AD6						
	AE6						
	AF6						
	AG6						
	AH6						
	AI6						

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ6						No
	AK6						Yes No
	AL6						Yes No
	AM6						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

MC	AN	6	Freyman, B. et al., "Surface Mount Process Technology for Ball Grid Array Packaging", Surface Mount International Conference Proceedings, Surface Mount International, August 29-September 2, 1993, San Jose, California, pp. 81-85.
	AO	6	Freyman, B. et al., "The Move to Perimeter Plastic BGAs", Surface Mount International Conference Proceedings, San Jose, CA, August 29-31, 1995, pp. 373-382.
	AP	6	Freyman, B. "Trends in Plastic BGA Packaging," Ball Grid Array National Symposium, Dallas, Texas, March 29-30, 1995, 45 pages.
	AQ	6	Gilleo, K., "Electronic Polymers: Die Attach and Oriented Z-Axis Films", Advanced Packaging, IHS Publishing Group, September/October 1994, Vol. 3, No. 5, pp. 37-38, 40 and 42.

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL <i>MC</i>	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
JUN 27 2001 A7	AB7					
PATENT & TRADEMARK OFFICE	AD7					
	AE7					
	AF7					
	AG7					
	AH7					
	AI7					

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ7					Yes No
	AK7					Yes No
	AL7					Yes No
	AM7					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

<i>MC</i>	AN	7	Hart, C., "Vias in Pads for Coarse and Fine Pitch Ball Grid Arrays", Surface Mount International Conference Proceedings, Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 203-207.
	AO	7	Hart, C. "Vias in Pads", Circuits Assembly, February 1995, Vol. 6, No. 2, pp. 42, 44-46 and 50.
	AP	7	Hattas, D., "BGAs Face Production Testing: New Package Offers Promise but Must Clear Technology Hurdles.", Advanced Packaging, IHS Publishing Group, Summer 1993, Vol. 2, No. 3, pp. 44-46.
<i>J</i>	AQ	7	Heitmann, R., "A Direct Attach Evolution: TAB, COB and Flip Chip Assembly Challenges", Advanced Packaging, IHS Publishing Group, July/August 1994, Vol. 3, No. 4, pp. 95-99 and 103.
<i>MC</i>	AR	7	Hodson, T., "Study Examines BGA Use", Electronic Packaging & Production, March 1993, page unknown.

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EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
MC	JA8					
	AB8					
	AC8					
	AD8					
	AE8					
	AF8					
	AG8					
	AH8					
	AI8					

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ8					Yes No
	AK8					Yes No
	AL8					Yes No
	AM8					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

MC	AN	8	Holden, H., "The Many Techniques of Small Via Formation for Thin Boards", The Institute for Interconnecting and Packaging Electronic Circuits Ball Grid Array National Symposium, San Diego, CA, January 18-19, 1996, pp. 1-7.
	AO	8	Houghten, J., "New Package Takes On QFPs", Advanced Packaging, IHS Publishing Group, Winter 1993, Vol. 2, No. 1, pp. 38-39.
	AP	8	"How To Give Your BGAs A Better Bottom Line.", Advanced Packaging, IHS Publishing Group, January/February 1995, page unknown.

MC	AQ	8	Huang, W. and Ricks, J., "Electrical Characterization of PBGA for Communication Applications by Simulation and Measurement", National Electronic Packaging and Production Conference West '95, February 26-March 2, 1995, Anaheim, California, pp. 300-307.
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MC	AR	8	Hundt, M. et al., "Thermal Enhancements of Ball Grid Arrays", National Electronic Packaging and Production Conference West '95, Reed Exhibition Companies, Anaheim, CA, February 25-29, 1996, pp. 702-711.
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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
PE JG	AA9					
O	AB9					
JUN 27 2002	AC9					
PTO	AD9					
PATENT & TRADEMARKS	AE9					
	AF9					
	AG9					
	AH9					
	AI9					

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ9					Yes No
	AK9					Yes No
	AL9					Yes No
	AM9					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

W	AN	9	Hutchins, C.L., "Understanding Grid Array Packages", Surface Mount Technology Magazine, IHS Publishing Group, November 1994, Vol. 8, No. 11, pp. 12-13.
	AO	9	Hwang, J.S., "Reliability of BGA Solder Interconnections", Surface Mount Technology Magazine, IHS Publishing Group, September 1994, Vol. 8, No. 9, pp. 14-15.
	AP	9	Hwang, J.S., "A Hybrid of QFP and BGA Architectures", Surface Mount Technology Magazine, IHS Publishing Group, February 1995, Vol. 9, No. 2, p. 18.
	AQ	9	Johnson, R. et al., "A Feasibility Study of Ball Grid Array Packaging", National Electronic Packaging and Production Conference East '93, Boston, Massachusetts, June 14-17, 1993, pp. 413-422.
W	AR	9	Johnson, R. et al., "Thermal Characterization of 140 and 225 Pin Ball Grid Array Packages", National Electronic Packaging & Production Conference East '93, Boston, Massachusetts, June 14-17, 1993, pp. 423-430.

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
		AA10					
		AB10					
		AC10					
		AD10					
		AE10					
		AF10					
		AG10					
		AH10					
		AI10					

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
		AJ10					Yes No
		AK10					Yes No
		AL10					Yes No
		AM10					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

<i>MC</i>	AN	10	Johnston, P., "Land Pattern Interconnectivity Schemes", Ball Grid Array National Symposium, Dallas, Texas, March 29-30, 1995, pages 2-21.
	AO	10	Johnston, P., "Printed Circuit Board Design Guidelines for Ball Grid Array Packages", Journal of Surface Mount Technology, Surface Mount Technology Association, January 1996, Vol. 9, pp. 12-18.
	AP	10	Kawahara, T. et al., "Ball Grid Array Type Package By Using of New Encapsulation Method", Proceedings of the 1995 International Electronics Packaging Conference, San Diego, CA, September 24-27, 1995, pp. 577-587.
	AQ	10	Knickerbocker, J.U. and Cole, M.S., "Ceramic BGA: A Packaging Alternative", Advanced Packaging, IHS Publishing Group, January/February 1995, Vol. 4, No. 1, pp. 20, 22 and 25.

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EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
ME	AA11					
ME	AB11					
ME	AC11					
ME	AD11					
ME	AE11					
ME	AF11					
ME	AG11					
ME	AH11					
ME	AI11					

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ11					Yes No
	AK11					Yes No
	AL11					Yes No
	AM11					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

MC	AN	11	Kunkle, R., "Discrete Wiring for Array Packages", Ball Grid Array National Symposium, Dallas, Texas, March 29-30, 1995, 9 pages.
	AO	11	Lall, B. et al, "Methodology for Thermal Evaluation of Multichip Modules", IEEE Transactions on Components, Packaging, and Manufacturing Technology Part A, IEEE, December 1995, Vol. 18, No. 4, pp. 758-764.
	AP	11	Lasance, C. et al., "Thermal Characterization of Electronic Devices with Boundary Condition Independent Compact Models", IEEE Transactions on Components, Packaging, and Manufacturing Technology Part A, IEEE Components, Packaging, and Manufacturing Technology Society, December 1995, Vol. 18, No. 4, pp. 723-731.
	AQ	11	Lau, J., "Ball Grid Array Technology", McGraw-Hill Inc., 1995, entire book submitted.
	AR	11	Lau, J. et al., "No Clean Mass Reflow of Large Plastic Ball Grid Array Packages", Circuit World, Wela Publications Ltd., Vol. 20, No. 3, March 1994, pp.15-22.

EXAMINER		DATE CONSIDERED
		10/10/02

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AA12						
AB12						
AC12						
AD12						
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AF12						
AG12						
AH12						
AI12						

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
AJ12						Yes No
AK12						Yes No
AL12						Yes No
AM12						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

MC	AN	12	"Literature Review", Special Supplement to Electronic Packaging & Production, February 1995, Cahners Publication, 10 pages.
	AO	12	LSI LOGIC Package Selector Guide, Second Edition, LSI Logic Corporation, 1994-1995, entire document submitted.
	AP	12	"LTCC MCMs Lead to Ceramic BGAs," Advanced Packaging, IHS Publishing Group, September/October 1994, Vol. 3, No. 5, pp. 14-15.
	AQ	12	Mak, Dr. W.C. et al., "Increased SOIC Power Dissipation Capability Through Board Design and Finite Element Modeling", Journal of Surface Mount Technology, Surface Mount International, October 1994, pp. 33-41.
	AR	12	Marrs, R.C. and Olachea, G., "BGAs For MCMs: Changing Markets and Product Functionality", Advanced Packaging, IHS Publishing Group, September/October 1994, Vol. 3, No. 5, pp. 48, 50, and 52.

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
AA13						
AB13						
AC13						
AD13						
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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
AJ13						Yes No
AK13						Yes No
AL13						Yes No
AM13						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

MC	AN	13	Matthew, L.C. et al., "Area Array Packaging: KGD in a Chip-Sized Package", Advanced Packaging, IHS Publishing Group, July/August 1994, pp. 91-94.
	AO	13	Mawer, A. et al., "Plastic BGA Solder Joint Reliability Considerations", Surface Mount International Conference Proceedings, Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 239-251.
	AP	13	Mazzullo, T. and Schaertl, L., "How IC Packages Affect PCB Design", Surface Mount Technology Magazine, February 1995, Vol. 9, No. 2, pp. 114-116.
	AQ	13	Mearig, J., "An Overview of Manufacturing BGA Technology", National Electronic Packaging and Production Conference West '95, February 26-March 2, 1995, Anaheim, California, pp. 295-299.
MC	AR	13	Mertol, A., "Application of the Taguchi Method on the Robust Design of Molded 225 Plastic Ball Grid Array Packages", IEEE Transactions on Components, Packaging, and Manufacturing Technology Part B: Advanced Packaging, IEEE, November 1995, Vol. 18, No. 4, pp. 734-743.

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FORM PTO-1449  <u>SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT</u>			ATTY. DOCKET NO. 1875.0370000	APPLICATION NO. 09/849,537
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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
AA14							
AB14							
JUN 21 2002 P A T E N T & T R A D E M A R K S O C I E T Y O P E C	AC14						
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AI14							

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ14						Yes No
	AK14						Yes No
	AL14						Yes No
	AM14						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

<i>MC</i>	AN	14	Mescher, P. and Phelan, G., "A Practical Comparison of Surface Mount Assembly for Ball Grid Array Components", Surface Mount International Conference Proceedings, Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 164-168.
	AO	14	Mulgaonker, S. et al., "An Assessment of the Thermal Performance of the PBGA Family", Eleventh Annual IEEE Semiconductor Thermal Measurement and Management Symposium, IEEE, San Jose, CA, February 7-9, 1995, pp. 17-27.
	AP	14	"New PBGA Pushes Technology to Outer Limits", Advanced Packaging, IHS Publishing Group, January/February 1995, page 11.
	AQ	14	Olachea, G. "Managing Heat: A Focus on Power IC Packaging", Electronic Packaging & Production (Special Supplement); Cahners Publishing Company, November 1994, pp. 26-28.
<i>U</i>	AR	14	"Pad Array Improves Density", Electronic Packaging & Production, Cahners Publishing Company, May 1992, pp. 25-26.

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
01 P E JCP		AA15					
JUN 27 2002		AB15					
PATENT & TRADEMARK OFFICE		AC15					
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		AI15					

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
		AJ15					Yes No
		AK15					Yes No
		AL15					Yes No
		AM15					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

MC	AN	15	Partridge, J. and Viswanadham, P., "Organic Carrier Requirements for Flip Chip Assemblies", Journal of Surface Mount Technology, Surface Mount Technology Association, July 1994, pp. 15-20.
	AO	15	Ramirez, C. and Fauser, S., "Fatigue Life Comparison of The Perimeter and Full Plastic Ball Grid Array", Surface Mount International Conference Proceedings, Surface Mount International, August 28-September1, 1994, San Jose, California, pp. 258-266.
	AP	15	Rogren, P., "MCM-L Built on Ball Grid Array Formats", National Electronic Packaging and Production Conference West '94, Anaheim, California, pp. 1277-1282.
	AQ	15	Rooks, S., "X-Ray Inspection of Flip Chip Attach Using Digital Tomosynthesis", Surface Mount International, Proceedings of The Technical Program, August 28-September1, 1994, San Jose, California, pp. 195-202.
	AR	15	Rukavina, J., "Attachment Methodologies: Ball Grid Array Technology", Ball Grid Array National Symposium, Dallas, Texas, March 29-30, 1995, 37 pages.

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
OPF		AA16					
JUN 27 2002		AB16					
PATENT & TRADEMARK OFFICE		AC16					
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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
		AJ16					Yes No
		AK16					Yes No
		AL16					Yes No
		AM16					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

MC	AN	16	Sack, T., "Inspection Technology", Ball Grid Array National Symposium, Dallas, Texas, March 29-30, 1995, pages 1-41.
	AO	16	Sakaguchi, H., "BGA MountingTechnology," pgs. 1-4, date and source unknown.
	AP	16	Schmolze, C. and Fraser, A., "SPICE Modeling Helps Enhance BGA Performance", Electronic Packaging & Production, January 1995, pp. 50-52.
	AQ	16	Semiconductor Group Package Outlines Reference Guide, Texas Instruments, 1995, entire document submitted.
	AR	16	Shimizu, J., "Plastic Ball Grid Array Coplanarity", Surface Mount International Conference, San Jose, California, August 31-September 2, 1993, pp. 86-91.

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA17					
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	AG17					
	AH17					
	AI17					

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ17					Yes No
	AK17					Yes No
	AL17					Yes No
	AM17					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

MC	AN	17	Siglano, R., "Using BGA Packages: An Appealing Technology in a QFP and Fine-Pitch Market", Advanced Packaging, IHS Publishing Group, March/April 1994, pp. 36-39.
	AO	17	Sirois, L., "Dispensing for BGA: Automated Liquid Dispensing in a High-Density Environment", Advanced Packaging, IHS Publishing Group, May/June 1995, pp. 38 and 41.
	AP	17	Solberg, V., "Interconnection Structure Preparation: Impact of Material Handling and PCB Surface Finish on SMT Assembly Process Yield", Ball Grid Array National Symposium, Dallas Texas, March 29-30, 1995, 10 pages.
	AQ	17	"Survival of the Fittest", Advanced Packaging, IHS Publishing Group, March/April 1995, page unknown.
	AR	17	Tuck, J., "BGA Technology Branches Out", Circuits Assembly, February 1995, Vol. 6, No. 2, pp. 24, 26, and 28.

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
AA18						
AB18						
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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ18					Yes No
	AK18					Yes No
	AL18					Yes No
	AM18					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

MC	AN	18	"Tutorial and Short Courses", 45th Electronic Components & Technology Conference, May 21-24, 1995, Las Vegas, Nevada, IEEE, 6 pages.
	AO	18	Vardaman, E. J. and Crowley, R.T., "Worldwide Trends In Ball Grid Array Developments", National Electronic Packaging and Production Conference West '96, Reed Exhibition Companies, Anaheim, CA, February 25-29, 1996, pp. 699-701.
	AP	18	Walshak, D. and Hashemi, H., "Thermal Modeling of a Multichip BGA Package", National Electronic Packaging and Production Conference West '94, Reed Exhibition Companies, Anaheim, California, February 27-March 4, 1994, pp. 1266-1276.
	AQ	18	Walshak, D. and Hashemi, H., "BGA Technology: Current and Future Direction for Plastic, Ceramic and Tape BGAs", Surface Mount International Conference Proceedings, Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 157-163.
	AR	18	Xie, H. et al., "Thermal Solutions to Pentium Processors in TCP in Notebooks and Sub-Notebooks" 45th Electronic Components & Technology Conference, IEEE, Las Vegas, NV, May 21-24, 1995, pp. 201-210.

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EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
Q I P E JUN 27 2002 P R I V A T E S T R A T E M A N	AA19					
	AB19					
	AC19					
	SD19					
	AE19					
	AF19					
	AG19					
	AH19					
	AI19					

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ19					Yes No
	AK19					Yes No
	AL19					Yes No
	AM19					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

M	AN	19	Yip, W.Y., "Package Characterization of a 313 Pin BGA", National Electronic Packaging and Production Conference West '95, Reed Exhibition Companies, February 26-March 2, 1995, Anaheim, California, pp. 1530-1541.
/	AO	19	Zamborsky, E., "BGAs in the Assembly Process", Circuits Assembly, February 1995, Vol. 6, No. 2, pp. 60, 62-64.
	AP	19	Zimerman, M., "High Performance BGA Molded Packages for MCM Application", Surface Mount International Conference Proceedings, Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 175-180.
	AQ	19	Zweig, G., "BGAs: Inspect the Process, Not the Product", Electronic Packaging & Production (Special Supplement), Cahners Publishing Company, August 1994 (Supplement), p. 41.
U	AR	19	Houghten, J.L., "Plastic Ball-Grid Arrays Continue To Evolve", Electronic Design, February 6, 1995, pp. 141-146.

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
PE	AA20					
OC	AB20					
JUN 27 2002	AC20					
PTA	AD20					
	AE20					
	AF20					
	AG20					
	AH20					
	AI20					

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ20					Yes No
	AK20					Yes No
	AL20					Yes No
	AM20					Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

MC	AN	20	Marrs, R. et al., "Recent Technology Breakthroughs Achieved with the New SuperBGA® Package", 1995 International Electronics Packaging Conference, San Diego, California, September 24-27, 1995, pp. 565-576.
MC	AO	20	Hayden, T.F. et al., "Thermal & Electrical Performance and Reliability Results for Cavity-Up Enhanced BGAs", Electronic Components and Technology Conference, IEEE, 1999, pp. 638-644.
MC	AP	20	Thompson, T., "Reliability Assessment of a Thin (Flex) BGA Using a Polyimide Tape Substrate", International Electronics Manufacturing Technology Symposium, IEEE, 1999, pp. 207-213.
	AQ	20	
	AR	20	

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<p style="text-align: center;">O I P E</p> <p>AUG 26 2002</p> <p>U.S. PATENT AND TRADEMARK OFFICE SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT</p> <p>PTO-1449</p>				ATTY. DOCKET NO. 1875.0370000	APPLICATION NO. 09/849,537		
				APPLICANT Zhang et al.	AUG 29 2002		
				FILING DATE May 7, 2001		GROUP 2822	
<b>U.S. PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
MC	AA1	5,291,062	03/1994	Higgins, III			
	AB1	5,583,377	12/1996	Higgins, III			
	AC1	5,953,589	09/1999	Shim et al.			
	AD1	6,184,580 B1	02/2001	Lin			
MC	AE1	2001/0045644 A1	11/2001	Huang			
	AF1						
	AG1						
	AH1						
	AI1						
<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
MC	AJ1	JP 11-17064	01/1999	Japan	H01L	23/14	Yes No
MC	AK1	JP 11-102989	04/1999	Japan	H01L	23/12	Yes No
MC	AL1	JP 7-283336	10/1995	Japan	H01L	23/12	Yes No
	AM1						Yes No
<b>OTHER (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
MC	AN	1	English-language Abstract of Japanese Patent Publication No. 11-017064, 1 Page (January 22, 1999 - Date of publication of application).				
MC	AO	1	English-language Abstract of Japanese Patent Publication No. 11-102989, 1 Page (April 13, 1999 - Date of publication of application).				
MC	AP	1	English-language Abstract of Japanese Patent Publication No. 07-283336, 1 Page (October 27, 1995 - Date of publication of application).				
MC	AQ	1	Copy of International Search Report issued July 25, 2002 for Appln. No. PCT/US01/44955, 4 pages.				
	AR	1					
EXAMINER <i>MC</i>				DATE CONSIDERED <i>10/21/02</i>			
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